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BIOTECHNOLOGY  
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SYSTEMS  
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## RAW SEQUENCE LISTING ERROR REPORT

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/830,502  
Source: 1600  
Date Processed by STIC: 4/24/2003

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION AND PATENTIN SOFTWARE QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

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Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<http://www.uspto.gov/ebc/efs/downloads/documents.htm>), EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
3. Hand Carry directly to:  
U.S. Patent and Trademark Office, Technology Center 1600, Reception Area, 7<sup>th</sup> Floor, Examiner Name,  
Sequence Information, Crystal Mall One, 1911 South Clark Street, Arlington, VA 22202  
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Revised 04/24/2003



1600

**RAW SEQUENCE LISTING**  
PATENT APPLICATION: US/09/830,502

DATE: 04/24/2003  
TIME: 14:25:05

Input Set : A:\C26151.app  
Output Set: N:\CRF4\04242003\I830502.raw

3 <110> APPLICANT: Barany, Francis  
 4 Cao, Weiguo  
 5 Tong, Jie  
 7 <120> TITLE OF INVENTION: HIGH FIDELITY THERMOSTABLE LIGASE AND USES THEREOF  
 9 <130> FILE REFERENCE: 19603/2615  
 11 <140> CURRENT APPLICATION NUMBER: 09/830,502  
 12 <141> CURRENT FILING DATE: 1999-10-29  
 14 <150> PRIOR APPLICATION NUMBER: 60/106,461  
 15 <151> PRIOR FILING DATE: 1998-10-30  
 17 <150> PRIOR APPLICATION NUMBER: PCT/US99/25437  
 18 <151> PRIOR FILING DATE: 1999-10-29  
 20 <160> NUMBER OF SEQ ID NOS: 20  
 22 <170> SOFTWARE: PatentIn Ver. 2.1

#### ERRORED SEQUENCES

451 <210> SEQ ID NO: 15	<i>Does Not Comply</i>
452 <211> LENGTH: 184	<i>Corrected Diskette Needed</i>
453 <212> TYPE: PRT	<i>ppl 1-4, 6-7</i>
454 <213> ORGANISM: Thermus aquaticus	
456 <400> SEQUENCE: 15	
457 Tyr Thr Val Glu His Lys Val Asp Gly Leu Ser Val Asn Leu Tyr Tyr	
458 1 , 5 10 15	
E--> 460 Glu Xaa	
461 20 25 30	
E--> 463 Xaa	
464 35 40 45	
E--> 466 Xaa	
467 50 55 60	
E--> 469 Xaa	
470 65 70 75 80	
E--> 472 Xaa	
473 85 90 95	
E--> 475 Xaa	
476 100 105 110	
E--> 478 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Glu Glu Thr Gly Xaa Xaa Xaa	
479 115 120 125	
E--> 481 Xaa	
482 130 135 140	
E--> 484 Xaa	
485 145 150 155 160	
E--> 487 Xaa Pro Phe Glu Ala	

*Xaa's need  
to be explained.*

*See p. 6 for  
more information*

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/830,502

DATE: 04/24/2003  
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Input Set : A:\C26151.app  
Output Set: N:\CRF4\04242003\I830502.raw

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490 Asp Gly Val Val Val Lys Leu Asp				
491	180			
494 <210> SEQ ID NO: 16				
495 <211> LENGTH: 187				
496 <212> TYPE: PRT				
497 <213> ORGANISM: Thermus flavus				
499 <400> SEQUENCE: 16				
500 Tyr Thr Val Glu His Lys Val Asp Gly Leu Ser Val Asn Leu Tyr Tyr				
501 1	5	10	15	
E--> 503 Glu Xaa				
504	20	25	30	
E--> 506 Xaa				
507	35	40	45	
E--> 509 Xaa				
510	50	55	60	
E--> 512 Xaa				
513	65	70	75	80
E--> 515 Xaa				
516	85	90	95	
E--> 518 Xaa			<i>same error</i>	
519	100	105	110	
E--> 521 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Glu Glu Val Glu Arg Glu Gly				
522	115	120	125	
E--> 524 Xaa				
525	130	135	140	
E--> 527 Xaa				
528	145	150	155	160
E--> 530 Xaa Pro				
531	165	170	175	
533 Phe Glu Ala Asp Gly Val Val Val Lys Leu Asp				
534	180	185		
537 <210> SEQ ID NO: 17				
538 <211> LENGTH: 184				
539 <212> TYPE: PRT				
540 <213> ORGANISM: Thermus filiformis				
542 <400> SEQUENCE: 17				
543 Tyr Thr Val Glu His Lys Val Asp Gly Leu Ser Val Asn Leu Tyr Tyr				
544 1	5	10	15	
E--> 546 Glu Xaa				
547	20	25	30	
E--> 549 Xaa				
550	35	40	45	
E--> 552 Xaa				
553	50	55	60	
E--> 555 Xaa				
556	65	70	75	80
E--> 558 Xaa				
559	85	90	95	

see p.3

*same error*

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/830,502

DATE: 04/24/2003  
TIME: 14:25:06

Input Set : A:\C26151.app  
Output Set: N:\CRF4\04242003\I830502.raw

E--> 561 Xaa  
 562 100 105 110  
 E--> 564 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Glu Glu Ser Gly Xaa Xaa Xaa  
 565 115 120 125  
 E--> 567 Xaa  
 568 130 135 140  
 E--> 570 Xaa  
 571 145 150 155 160  
 E--> 573 Xaa Pro Phe Glu Ala  
 574 165 170 175  
 576 Asp Gly Val Val Val Lys Met Asp  
 577 180  
 580 <210> SEQ ID NO: 18  
 581 <211> LENGTH: 184  
 582 <212> TYPE: PRT  
 583 <213> ORGANISM: Thermus filiformis  
 585 <400> SEQUENCE: 18  
 586 Tyr Thr Val Glu His Lys Val Asp Gly Leu Ser Val Asn Leu Tyr Tyr  
 587 1 5 10 15  
 E--> 589 Glu Xaa  
 590 20 25 30  
 E--> 592 Xaa  
 593 35 40 45  
 E--> 595 Xaa  
 596 50 55 60  
 E--> 598 Xaa  
 599 65 70 75 80  
 E--> 601 Xaa  
 602 85 90 95  
 E--> 604 Xaa  
 605 100 105 110  
 E--> 607 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Glu Glu Ser Gly Xaa Xaa Xaa  
 608 115 120 125  
 E--> 610 Xaa  
 611 130 135 140  
 E--> 613 Xaa  
 614 145 150 155 160  
 E--> 616 Xaa Pro Phe Glu Ala  
 617 165 170 175  
 619 Asp Gly Val Val Val Lys Leu Asp  
 620 180  
 623 <210> SEQ ID NO: 19  
 624 <211> LENGTH: 184  
 625 <212> TYPE: PRT  
 626 <213> ORGANISM: Thermus sp.  
 628 <400> SEQUENCE: 19  
 629 Tyr Thr Val Glu His Lys Val Asp Gly Leu Ser Val Asn Leu Tyr Tyr  
 630 1 5 10 15  
 E--> 632 Glu Xaa  
*same*

p.4

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/830,502

DATE: 04/24/2003  
TIME: 14:25:06

Input Set : A:\C26151.app  
Output Set: N:\CRF4\04242003\I830502.raw

633 20 25 30  
E--> 635 Xaa  
636 35 40 45  
E--> 638 Xaa  
639 50 55 60  
E--> 641 Xaa  
642 65 70 75 80  
E--> 644 Xaa  
645 85 90 95  
E--> 647 Xaa  
648 100 105 110  
E--> 650 Xaa Xaa Xaa Xaa Xaa Xaa Leu Glu Glu Ser Gly Xaa Xaa Xaa  
651 115 120 125  
E--> 653 Xaa  
654 130 135 140  
E--> 656 Xaa  
657 145 150 155 160  
E--> 659 Xaa Pro Phe Glu Ala  
660 165 170 175  
662 Asp Gly Val Val Val Lys Leu Asp  
663 180  
666 <210> SEQ ID NO: 20  
667 <211> LENGTH: 184  
668 <212> TYPE: PRT  
669 <213> ORGANISM: Thermus sp.  
671 <400> SEQUENCE: 20  
672 Tyr Thr Val Glu His Lys Val Asp Gly Leu Ser Val Asn Leu Tyr Tyr  
673 1 5 10 15  
E--> 675 Glu Xaa  
676 20 25 30  
E--> 678 Xaa  
679 35 40 45  
E--> 681 Xaa  
682 50 55 60  
E--> 684 Xaa  
685 65 70 75 80  
E--> 687 Xaa  
688 85 90 95  
E--> 690 Xaa  
691 100 105 110  
E--> 693 Xaa Xaa Xaa Xaa Xaa Xaa Leu Glu Glu Ser Gly Xaa Xaa Xaa  
694 115 120 125  
E--> 696 Xaa  
697 130 135 140  
E--> 699 Xaa  
700 145 150 155 160  
E--> 702 Xaa Pro Phe Glu Ala  
703 165 170 175  
705 Asp Gly Val Val Val Lys Leu Asp

*Same*

*Same*

**RAW SEQUENCE LISTING**

PATENT APPLICATION: US/09/830,502

DATE: 04/24/2003

TIME: 14:25:06

Input Set : A:\C26151.app

Output Set: N:\CRF4\04242003\I830502.raw

706

180

VARIABLE LOCATION SUMMARY  
PATENT APPLICATION: US/09/830,502

DATE: 04/24/2003  
TIME: 14:25:07

Input Set : A:\C26151.app  
Output Set: N:\CRF4\04242003\I830502.raw

Use of n's or Xaa's(NEW RULES):

Use of n's and/or Xaa's have been detected in the Sequence Listing.

Use of <220> to <223> is MANDATORY if n's or Xaa's are present.

in <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.

Seq#:15; Xaa Pos. 18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  
 Seq#:15; Xaa Pos. 37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55  
 Seq#:15; Xaa Pos. 56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74  
 Seq#:15; Xaa Pos. 75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93  
 Seq#:15; Xaa Pos. 94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109  
 Seq#:15; Xaa Pos. 110,111,112,113,114,115,116,117,118,119,120,126,127,128  
 Seq#:15; Xaa Pos. 129,130,131,132,133,134,135,136,137,138,139,140,141,142  
 Seq#:15; Xaa Pos. 143,144,145,146,147,148,149,150,151,152,153,154,155,156  
 Seq#:15; Xaa Pos. 157,158,159,160,161,162,163,164,165,166,167,168,169,170  
 Seq#:15; Xaa Pos. 171,172  
 Seq#:16; Xaa Pos. 18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  
 Seq#:16; Xaa Pos. 37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55  
 Seq#:16; Xaa Pos. 56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74  
 Seq#:16; Xaa Pos. 75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93  
 Seq#:16; Xaa Pos. 94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109  
 Seq#:16; Xaa Pos. 110,111,112,113,114,115,116,117,118,119,120,129,130,131  
 Seq#:16; Xaa Pos. 132,133,134,135,136,137,138,139,140,141,142,143,144,145  
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 Seq#:16; Xaa Pos. 160,161,162,163,164,165,166,167,168,169,170,171,172,173  
 Seq#:16; Xaa Pos. 174,175  
 Seq#:17; Xaa Pos. 18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  
 Seq#:17; Xaa Pos. 37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55  
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 Seq#:17; Xaa Pos. 75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93  
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 Seq#:17; Xaa Pos. 110,111,112,113,114,115,116,117,118,119,120,126,127,128  
 Seq#:17; Xaa Pos. 129,130,131,132,133,134,135,136,137,138,139,140,141,142  
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 Seq#:17; Xaa Pos. 157,158,159,160,161,162,163,164,165,166,167,168,169,170  
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 Seq#:18; Xaa Pos. 18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  
 Seq#:18; Xaa Pos. 37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55  
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 Seq#:18; Xaa Pos. 75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93  
 Seq#:18; Xaa Pos. 94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109  
 Seq#:18; Xaa Pos. 110,111,112,113,114,115,116,117,118,119,120,126,127,128  
 Seq#:18; Xaa Pos. 129,130,131,132,133,134,135,136,137,138,139,140,141,142  
 Seq#:18; Xaa Pos. 143,144,145,146,147,148,149,150,151,152,153,154,155,156  
 Seq#:18; Xaa Pos. 157,158,159,160,161,162,163,164,165,166,167,168,169,170  
 Seq#:18; Xaa Pos. 171,172  
 Seq#:19; Xaa Pos. 18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36  
 Seq#:19; Xaa Pos. 37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55  
 Seq#:19; Xaa Pos. 56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74

VARIABLE LOCATION SUMMARY  
PATENT APPLICATION: US/09/830,502

DATE: 04/24/2003  
TIME: 14:25:07

Input Set : A:\C26151.app  
Output Set: N:\CRF4\04242003\I830502.raw

Seq#:19; Xaa Pos. 75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93  
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Seq#:20; Xaa Pos. 18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36

**VERIFICATION SUMMARY**  
PATENT APPLICATION: US/09/830,502

DATE: 04/24/2003  
TIME: 14:25:07

Input Set : A:\C26151.app  
Output Set: N:\CRF4\04242003\I830502.raw

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L:503 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:16  
M:340 Repeated in SeqNo=16  
L:546 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:17  
M:340 Repeated in SeqNo=17  
L:589 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:18  
M:340 Repeated in SeqNo=18  
L:632 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:19  
M:340 Repeated in SeqNo=19  
L:675 M:340 E: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:20  
M:340 Repeated in SeqNo=20